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EXAMINER	
SULLIVAN, DANIEL M	

ART UNIT	PAPER NUMBER
1636	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/025,199	NEIMAN, PAUL E.	
	Examiner	Art Unit	
	Daniel M Sullivan	1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23,25 and 27-29* is/are rejected.

7)☒ Claim(s) *24,26 and 30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/28/2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This is the First Office Action on the Merits of the application filed 18 December 2001, which claims benefit of US Provisional application 60/257,142, filed 20 December 2000. The preliminary amendment filed 19 April 2002 has been entered. Claims 1-30, as originally filed, are presently pending.

Election/Restrictions

Applicant's election without traverse of Group II in the reply filed on 6 August 2004 is acknowledged.

Upon further consideration of the claims, it has been determined that claims of Groups I and II can be searched and examined together without undue burden. Therefore, the restriction requirement is hereby withdrawn.

Claims 1-30 are presently under consideration.

Specification

The disclosure is objected to because of the following informalities: The brief description of Figure 4 does not match the drawing. Specifically, the description does not refer to each panel (*i.e.* A, B) identified in the drawing.

Appropriate correction is required.

Claim Objections

Claims 6, 8, 10, 22 and 24 are objected to because of the following informalities:

Claim 6 is missing a period at the end of the sentence.

In claim 8, the phrase "a protein inhibitors" is grammatically incorrect. It is suggested that the singular "inhibitor" be used.

In claim 10, the phrase "a nucleic acid encoding cleavable peptide" is grammatically incorrect. It is suggested that the claim be amended to include an indefinite article before "cleavable" (*i.e.*, encoding a cleavable peptide).

In claim 22, line 2, "syngeneic" is misspelled.

In claim 24, the phrase "infection of great than 1" is grammatically incorrect. It is recommended that the claim be amended to read "infection of greater than 1").

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-22 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite in reciting in the final line, "whereby lymphoid cells of said first avian host produce said selected polypeptide." According to part (a) the lymphoid cells of the first avian host have been ablated, while it is the bursal stem cells from a donor that have been infected with a transducing virus that contains a nucleic acid encoding said selected polypeptide. Thus, it would seem that the outcome recited in the claim does not logically follow from the

method steps set forth. It is recommended that the final line of the claim be amended to read, "whereby said bursal stem cells from a donor produce said selected polypeptide in said first avian host."

Claims 2-22 are indefinite insofar as they depend from claim 1.

Claim 17 is further indefinite in the recitation of "substantially free". Page 5, lines 22-23, states that "substantially free" should be construed based upon the application to which the polypeptide is applied. However, the specification provides no specific guidance as to how the limitation of "substantially free" is related to the application to which the polypeptide is applied. The metes and bounds of the limitation are impossible to ascertain because, according to the specification, the meaning is to be construed based upon some undefined relationship to a variable standard. Therefore, the metes and bounds of the claim, as a whole, are unclear.

Claim 19 is further indefinite in the recitation of "purified to homogeneity". According to the specification at page 23, lines 10-13, "'purified to homogeneity,' as applied to the present invention, means that the peptide, polypeptide and/or protein has a level of purity where the peptide, polypeptide and/or protein is substantially free from other proteins and/or biological components" (emphasis added). The limitation "purified to homogeneity" is indefinite, at least, because it is based on the indefinite standard of "substantially free" (*Id.*). Furthermore, according to the description on page 5, the upper boundary of "substantially free" is "up to and approaching homogeneity" (lines 24-25). It would seem from the statements on page 5 that the scope of "substantially free" is broader than the scope of "purified to homogeneity", yet the definition of "purified to homogeneity" on page 23 would seem to encompass any level of purity that meets

the standard of "substantially free". Thus, the definition of "purified to homogeneity" is inconsistent with "homogeneity" as it is used on page 5, line 25.

Claim 27 is indefinite in the recitation of "said selected peptide". There is no antecedent basis for a selected peptide in claim 23, from which claim 27 depends. Amending the claim to depend from claim 26 would be remedial.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 8 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by either one of Neiman *et al.* (1985) *Proc. Natl. Acad. Sci. USA* 82:222-226 or Thompson *et al.* (1987) *Cell* 51 :371-381 as evidenced by Swiss-Prot database entry P06295.

Neiman *et al.* teaches a method for producing a selected polypeptide (*i.e.*, v-myc; see especially the paragraph bridging pages 223-224 and the first full paragraph on page 224), comprising ablating lymphoid cells in a first avian host embryo and infusing bursal stem cells form a donor, which bursal stem cells have been infected with a transducing virus that contains a nucleic acid encoding the selected polypeptide (see especially the second and third full paragraphs in the right column on page 222). Thus, Neiman *et al.* teaches a method comprising all of the limitations of the base claim 1.

Neiman *et al.* further teaches the method wherein: ablation is achieved in first avian host embryo by treating with an alkylating agent (*i.e.*, cyclophosphamide) according to claim 2 (see especially the second full paragraph in the right column on page 222); the avian host is a chicken according to claim 3; the transducing virus is a retrovirus (*i.e.*, HB1) according to claim 4 (see especially the third full paragraph in the right column on page 222); and selected protein is a signaling molecule and a DNA binding protein according to claim 8 (see especially Swiss-Prot entry P06295). In addition, as Neiman *et al.* demonstrates modulation of the properties of bursal immune cells as a consequence of expressing the selected protein (see especially the paragraph bridging the left and right columns on page 224), the selected protein of Neiman *et al.* is encompassed within the broadest reasonable interpretation of "immunomodulator" (see, *e.g.*, the dictionary definition, "a substance that affects the functioning of the immune system", Merriam-Webster Collegiate.com). Finally, the host embryos and the embryonic bursal cells of Neiman *et al.* are syngeneic according to claim 22 (*i.e.*, an inbred line; see especially the first full paragraph in the right column on page 222).

Neiman *et al.* teaches a method comprising each of the elements of claims 1-4, 8 and 22; therefore, the claims are anticipated by Neiman *et al.*

Thompson *et al.* also teaches a method for producing a selected polypeptide (*i.e.*, v-myc; see especially the third paragraph on page 372), comprising ablating lymphoid cells in a first avian host embryo and infusing bursal stem cells form a donor, which bursal stem cells have been infected with a transducing virus that contains a nucleic acid encoding the selected polypeptide (Thompson *et al.* teaches that the methods used therein are the same as in Neiman *et*

al. (*supra*)). Thus, Thompson *et al.* teaches a method comprising all of the limitations of the base claim 1.

Thompson *et al.* further teaches the method wherein: ablation is achieved in first avian host embryo by treating with an alkylating agent (*i.e.*, cyclophosphamide) according to claim 2; the avian host is a chicken according to claim 3; the transducing virus is a retrovirus (*i.e.*, HB1) according to claim 4 (see especially the second paragraph on page 380); and the selected protein is an immunomodulator (*Id.*), a signaling molecule and a DNA binding protein according to claim 8 (see especially Swiss-Prot entry P06295). The chickens used to provide host embryos and bursal stem cells in the method of Thompson *et al.* are the progeny of an F1 cross of two inbred chicken lines and are therefore closely related genetically (see especially the first full paragraph on page 380). Thus, the method of Thompson *et al.* meets the limitations of claim 22 according to the plain meaning of syngeneic (*i.e.*, "genetically identical or similar especially with respect to antigens or immunological reactions"; see Merriam-Webster OnLine).

Thompson *et al.* teaches a method comprising each of the elements of claims 1-4, 8 and 22; therefore, the claims are anticipated by Lee *et al.*

Claims 1-4, 8, 20-23, 25 and 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee *et al.* (1999) *Genes Dev.* 13:718-728.

Lee *et al.* teaches a method for producing a selected polypeptide (*i.e.*, Nr13 and GFP; see especially Figure 7 and the caption thereto), comprising ablating lymphoid cells in a first avian host embryo and infusing bursal stem cells form a donor, which bursal stem cells have been infected with a transducing virus that contains a nucleic acid encoding the selected polypeptide

(see especially the paragraph bridging pages 725-726). Thus, Lee *et al.* teaches a method comprising all of the limitations of the base claim 1.

Lee *et al.* further teaches the method wherein: ablation is achieved in first avian host embryo by treating with an alkylating agent (*i.e.*, cyclophosphamide) according to claim 2 (see especially the sentence bridging pages 725-726); the avian host is a chicken according to claim 3; the transducing virus is a retrovirus according to claim 4 (*i.e.*, LNRSN or LNRCG; see especially Figure 5 and the caption thereto and the first full paragraph on page 726); the selected protein Nr13 is a signaling molecule and immunomodulator according to claim 8 (see especially the paragraph bridging the left and right columns on page 723 and the discussion of "immunomodulator" herein above); the donor bursal cells are from a 15-day-old embryo according to claim 21 (see especially the first full sentence on page 726); and the chickens used to provide host embryos and bursal stem cells are syngeneic according to claim 22 (*i.e.*, inbred SC strain; see especially the paragraph bridging pages 725-726).

Claim 20 is directed to the method of claim 1, which recites "ablating cells in a first avian host embryo", wherein said first avian host embryo is 15 days old. Lee *et al.* teaches the method wherein the process of ablation of cells in the host embryo begins on day 15 (see especially the sentence bridging pages 725-726); thus, the method of Lee *et al.* anticipates the method of claim 20.

The method of Lee *et al.* also anticipates the method of independent claim 23, comprising: providing an avian bursal stem cell that is syngeneic to an avian host, transducing the bursal stem cell with a first transducing virus that contains a nucleic acid encoding an

apoptosis inhibitor (*i.e.*, Nr13; see especially the first full paragraph on page 721); and infusing the avian host with the transduced bursal stem cell.

Lee *et al.* further teaches the method of claim 23, wherein: the avian host is a chicken according to claim 25; wherein the selected polypeptide is an immunomodulator according to claim 27 (*Id.*); the transducing virus is a retrovirus according to claim 28 (*Id.*); and the avian host is an embryo according to claim 29 (see especially the paragraph bridging pages 725-726).

Lee *et al.* teaches a method comprising each of the elements of claims 1-4, 8, 20-23, 25 and 27-29; therefore, the claims are anticipated by Lee *et al.*

Allowable Subject Matter

Claims 26 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel M Sullivan whose telephone number is 571-272-0779. The examiner can normally be reached on Monday through Thursday 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel, Ph.D. can be reached on 571-272-0781. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel M Sullivan, Ph.D.
Examiner
Art Unit 1636